

REMARKS

Applicant is in receipt of the Office Action mailed May 6, 2004.

A. Claims

No claims have been amended. Claims 1-26 are pending.

B. 35 U.S.C. §102 Rejections

The Examiner has rejected claims 1, 2, 5, 7, 8, 11-14, 17, 19, 20, and 23-26 under 35 U.S.C. §102(e) as being anticipated by Gudaz et al (U.S. Pat. No. 6,510,353) (hereinafter "Gudaz"). Applicant respectfully disagrees with these rejections.

Applicant respectfully reminds the Examiner that the standard for "anticipation" is one of fairly strict identity. To anticipate a claim of a patent, a single prior source must contain all the claimed essential elements. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 U.S.P.Q. 81, 91 (Fed.Cir. 1986); *In re Donahue*, 766 F.2d 531, 226 U.S.P.Q. 619, 621 (Fed.Cir. 1985).

Gudaz does not disclose, teach, or suggest "displaying at least one graphical user input (GUI) element for specifying a desired performance characteristic of a PID controller" as recited in claim 1. The Examiner states:

Specifically, the parameter Td of Gudaz is defined as the derivative action weighting factor (see col. 21, lines 6-51, "Generally speaking, a PID control...or derivative actions."), which is used to control the differential gain (and therefore the stiffness and response time) in a manner analogous to the factor d of the present invention. (Office Action, page 13).

As disclosed by the Applicant, Td is used to control how often the derivative is calculated. It is one of the factors calculated using a user selected performance characteristic in the Applicant's specification. The Examiner points to col. 25, lines 15-

35 and col. 28, lines 8-34 for the teaching that T_d is used to control differential gain, and therefore, according to the Examiner, stiffness and response time. However, Gudaz teaches T_d is set to a constant value before displaying a robustness plot to the user:

The derivative weighting factor could be allowed to change in a PID controller, which would result in a stability region being a volume. However to present the stability region as a two-dimensional region, and because the derivative component usually plays a lesser role in the choice of tuning parameters for a P+I+D controller, the derivative weighting factor is set to a constant value in this example. (Gudaz, col. 26, lines 14-21).

Even if T_d was analogous to a performance characteristic (which the Applicant argues it is not), Gudaz teaches that the derivative weighting factor is set to a constant value (not user selected as maintained by the Examiner). Gudaz does not suggest receiving a performance characteristic from a user. Gudaz discloses calculating a set of characteristics for a robustness point selected by a user:

Thereafter, the routine 100 may enable a user to select a point on the robustness map 106 and determine, from the selected point and the stored tuning parameters for other points on the robustness map 106, a further set of tuning parameters that will create a controller of the selected type which results in a control loop having the robustness qualities associated with the selected point. The routine 100 may then run a simulation using the new set of tuning parameters to enable the user to view the characteristics of this new controller. (Gudaz, col. 20, lines 17-26).

The robustness map plots phase margin versus gain margin (Gudaz, col. 3, lines 63-64), not performance characteristics. Therefore, Gudaz also does not disclose “receiving user input to the at least one GUI element indicating the desired performance characteristic” as recited in claim 1.

The Examiner also states:

Even if the Applicant takes issue with an Examiner’s position above, Gudaz also anticipates that any other robustness characteristics or measures of stability known to those of ordinary skill in the art could be selected by a robustness curve in an analogous manner (col. 22, line 55 –

col. 23, line 29, “Next, a user...pattern as desired.”; col. 31, lines 21-31, “While the robustness map...of the robustness qualities.”). (Office Action, page 14).

However, as stated by Gudaz:

The robustness map may take the form of a plot that illustrates phase margin versus gain margin, although other robustness qualities or measurements... (emphasis added) (Gudaz, col. 22, lines 65-67).

If desired, the robustness points... (emphasis added) (Gudaz, col. 23, line 19).

Alternatively, robustness map points... (emphasis added) (Gudaz, col. 23, line 24).

Gudaz does not disclose using performance characteristics to calculate a robustness plot, but instead emphasizes robustness qualities. The Examiner points to “any other measure of stability could be used as well,” in Gudaz, but Gudaz does not teach performance characteristics as a “measure of stability”. Applicant respectfully requests the Examiner withdraw the rejection to claims 1 and claims dependent thereon.

Claims 12, 19, 25, and 26 recite, among others, a similar limitation not disclosed, taught, or suggested by the cited art. Applicant respectfully requests removal of the rejection of claims 12, 19, 25, 26, and claims dependent thereon.

Furthermore, Gudaz does not disclose, teach, or suggest “the user input comprises a user-drawn step response curve, wherein the step response curve is displayed on a graphical user interface on a display device” and “deriving one or more parameter values indicating the desired performance characteristic of the PID controller autotuning algorithm from the user-drawn response curve” as recited in claim 11. The Examiner points to Gudaz at col. 19 for this teaching. However, Gudaz teaches a user selecting robustness qualities. Gudaz does not suggest a user drawing a step response curve. Applicant respectfully asserts claim 11 is also allowable for at least the above reasons.

In addition, Gudaz does not disclose, teach, or suggest “a desired qualitative performance characteristic (emphasis added)” as recited in claim 26. The Examiner states: “The Examiner finds that in teaching the selection of a point on a robustness map, Gudaz teaches just such a ‘qualitative performance characteristic’ (Office Action, page 14).” The slider controls given as an example in the Applicant specification allow a user to select a position between 0 and 1 for a relative stiffness or response time. Gudaz discloses selecting an exact point on a plot corresponding to exact values of robustness. In the Applicant’s claimed method, the user does not necessarily need to know exact values of variables needed to calculate PID characteristics. The Applicant also does not need to understand how robustness relates to PID characteristics as would be required in Gudaz. Applicant asserts claim 26 is also allowable for at least the above reasons.

C. 35 U.S.C. §103 Rejections

The Examiner has rejected claims 6 and 15 under 35 U.S.C. §103(a) as being unpatentable over Gudaz in view of Kennedy et al. (U.S. Pat. No. 5,832,532) (hereinafter “Kennedy”). Applicant respectfully disagrees with these rejections. Applicant asserts claims 6 and 15, dependent on patentably distinct claims 1 and 12, respectively, are allowable for at least the above reasons.

The Examiner has rejected claims 9 and 16 under 35 U.S.C. §103(a) as being unpatentable over Gudaz in view of Molnar (U.S. Pat. No. 5,734,597) (hereinafter “Molnar”). Applicant respectfully disagrees with these rejections. Applicant asserts claims 9 and 16, dependent on patentably distinct claims 1 and 12, respectively, are allowable for at least the above reasons.

The Examiner has rejected claim 10 under 35 U.S.C. §103(a) as being obvious over Gudaz. Applicant respectfully disagrees with these rejections. Applicant asserts claim 10, dependent on patentably distinct claim 1, is allowable for at least the above reasons. Applicant also notes that the cited references do not suggest “wherein the user input determines a value d, wherein the value d indicates the desired performance

characteristic” as recited in claim 10. Applicant also respectfully submits that it would not be obvious to a person of ordinary skill in the art to use a user input to determine d.

E. Additional Remarks

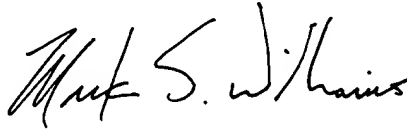
Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel PC Deposit Account No. 50-1505/5150-51300/JCH.

Also enclosed herewith are the following items:

☒ Return Receipt Postcard

Respectfully submitted,



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